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| Candidate Name | Centre Number | Candidate Number |
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WELSH JOINT EDUCATION COMMITTEE
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU
Tystysgrif Gyffredinol Addysg Uwchradd

138/01

**GCSE
DESIGN AND TECHNOLOGY**

PAPER 1

(Foundation Tier - Grades G to C)

P.M. TUESDAY, 6 June 2006

(30 minutes)

| | |
|-------------------|------------------------|
| | Leave Blank |
| Question 1 | |
| Question 2 | |
| Question 3 | |
| TOTAL MARK | |

INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. Where the space is not sufficient for your answer, continue the answer at the back of the book, taking care to number the continuation correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

*Answer **all** questions in the spaces provided.*

1. (a) (i) **Tick (✓)** the main reason why designers look at existing products *before* designing new ones. [1]

• To plan how long the product will take to make.

☐

• To see how products are assembled.

☐

• To evaluate their design against the specification.

☐

- (ii) **Tick (✓)** the main reason why a design specification is written before designing new products. [1]

• To see if the product works.

☐

• To give the designer something to write about.

☐

• To make sure the new product includes the most important features.

☐

- (b) **Give one** advantage of using a time plan or Gantt chart to plan the making of a design and technology product. [2]

.....

.....

- (c) A list of smart materials is shown below.

Thermochromic film

Modified starch

Nitol (muscle wire)

Polymorph

Photochromic dye

Electro-luminescent sheet

Choose one of these smart materials and describe briefly how it works.

Name of the smart material:

How it works:

.....

.....

.....

[2]

- (d) *Quality* is important in product design and manufacture.
Using the list below, **place** the correct term against the meaning.
The first one has been done for you.

[2]

Quality mark**Quality control**~~**Quality assurance**~~**Quality guarantee**

| Term | Meaning |
|-------------------|---|
| Quality assurance | The guarantee that a company's product meets high quality standards. |
| | The symbol that is put on products to show that they have been made to a high standard. |
| | Checks that are carried out during the manufacturing process. |

- (e) **Give two** reasons why manufacturers test products before they are sold.

[2]

Reason 1:

Reason 2:

- (f) The BSI sets standards for many products.





ISO 9001

Complete the sentence below.

BSI stands for the B Standards I

[2]

2. (a) The designs and features of computer printers change over time.
Study the information about the two printers shown below.

| | | |
|---|---|--|
| |  |  |
| Features | A (Made in 1999) | B (Made in 2004) |
| Number of pages it can print per minute | 12 | 30 |
| Size (mm) | 485mm length 470mm width 505mm height | 464mm length 372mm width 212mm height |
| Weight | 14.7kg | 10.8kg |
| Cost when new | £350 | £230 |
| Colour of the casing | Grey | Silver and grey |
| Colour display? | No | Yes |

- (i) **State four** ways in which printer **B** has been improved over printer **A**. 4 × [1]

- I
- II
- III
- IV

- (ii) **Explain** why the cost of printers has fallen in recent years. [2]

.....

.....

- (iii) The two printers have several additional features. They both have a built in fax, scanner and copier.

(I) **Explain one** advantage of having several additional features in a printer. [2]

.....

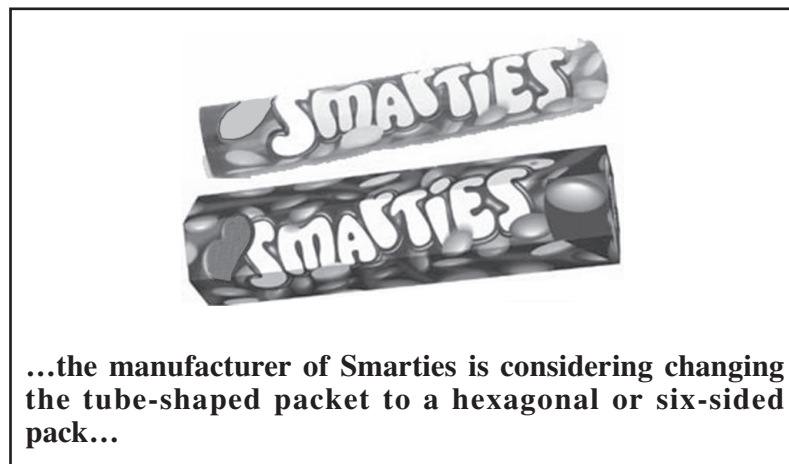
.....

(II) **Explain one** disadvantage of having several additional features in a printer. [2]

.....

.....

- (b) Study the newspaper cutting below.



- (i) **Give one** possible reason why the manufacturer has decided to change the shape of the packaging. [2]

.....

.....

- (ii) **Explain** why the manufacturer has not changed the style of lettering for the name of the sweets. [2]

.....

.....

- (iii) Most products are sold packaged in some way.
Give two functions of product packaging. [2]

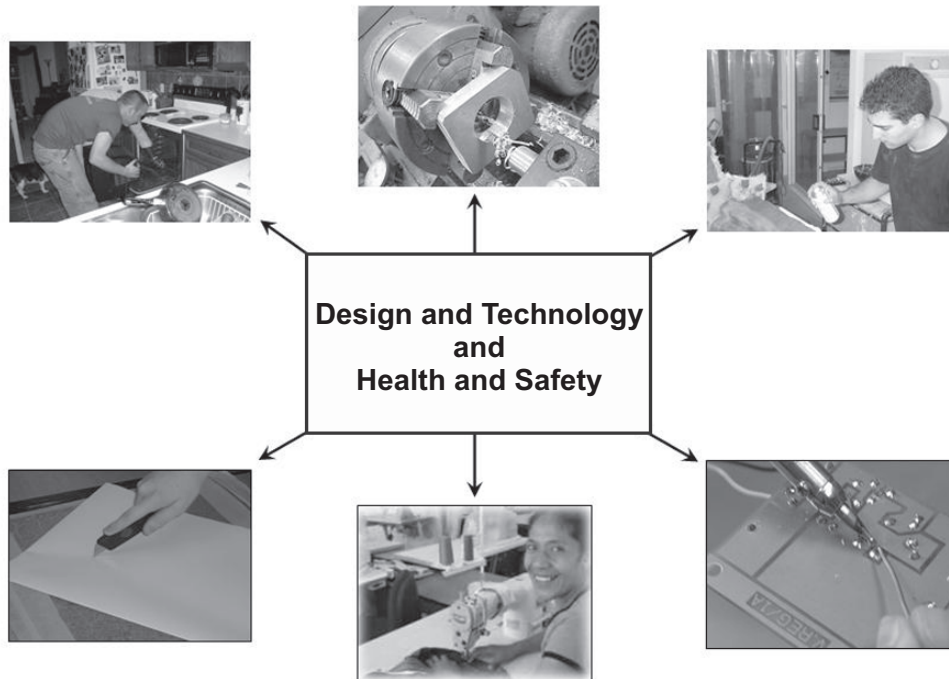
Function 1:

Function 2:

- (iv) **Give one** possible disadvantage of packaging products. [1]

.....

3. Sensible health and safety procedures such as those shown in the pictures below are important in school design and technology practical activities.



Select two of the design and technology activities shown above and for each, **state three** *different* safety precautions you should take to make the activity as safe as possible. $2 \times [3]$

Activity I

Safety precaution (i)

Safety precaution (ii)

Safety precaution (iii)

Activity II

Safety precaution (i)

Safety precaution (ii)

Safety precaution (iii)

[illegible]